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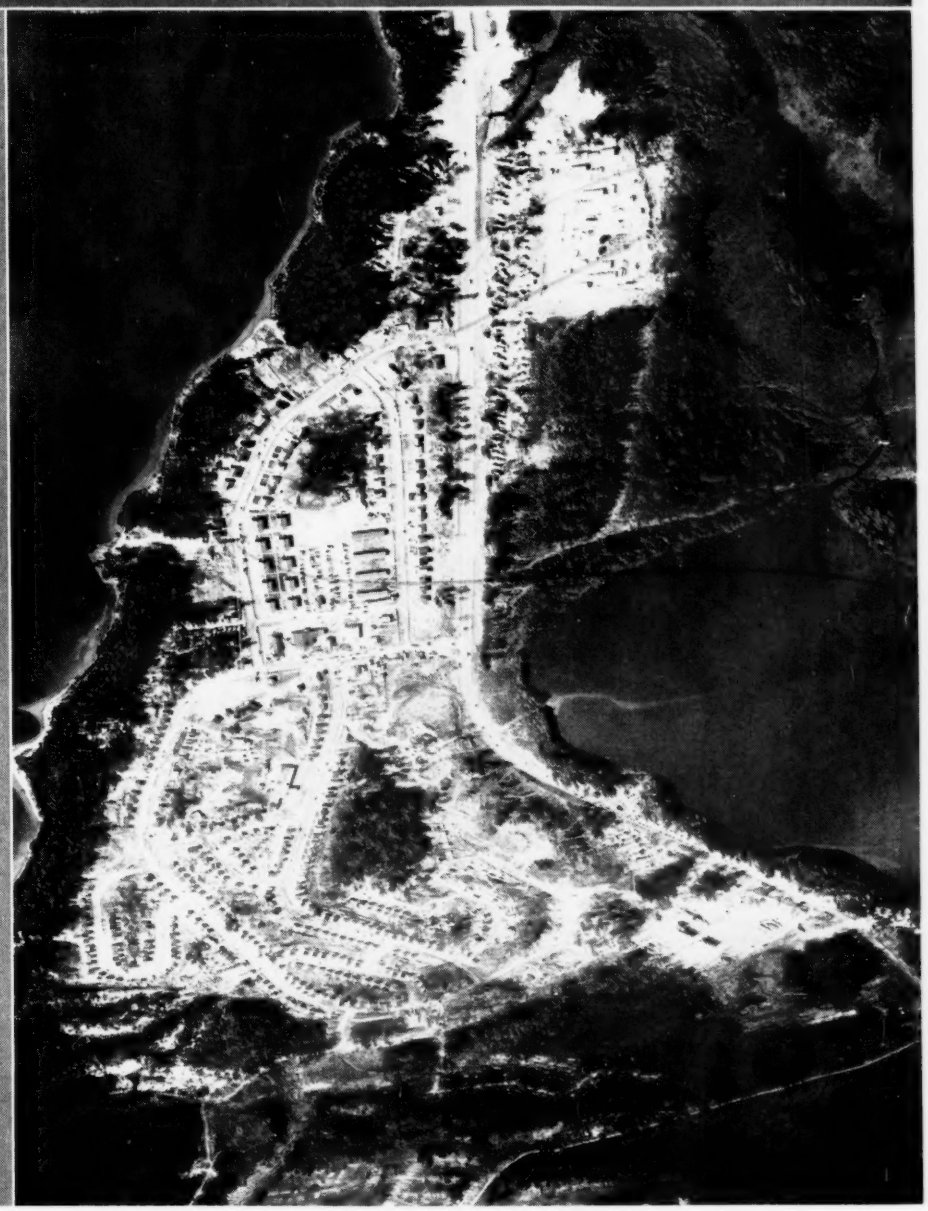

Topics

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FRONT LINE PSYCHIATRY

STATISTICS . . . TRUTH OR FICTION?

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Occupational Health Division

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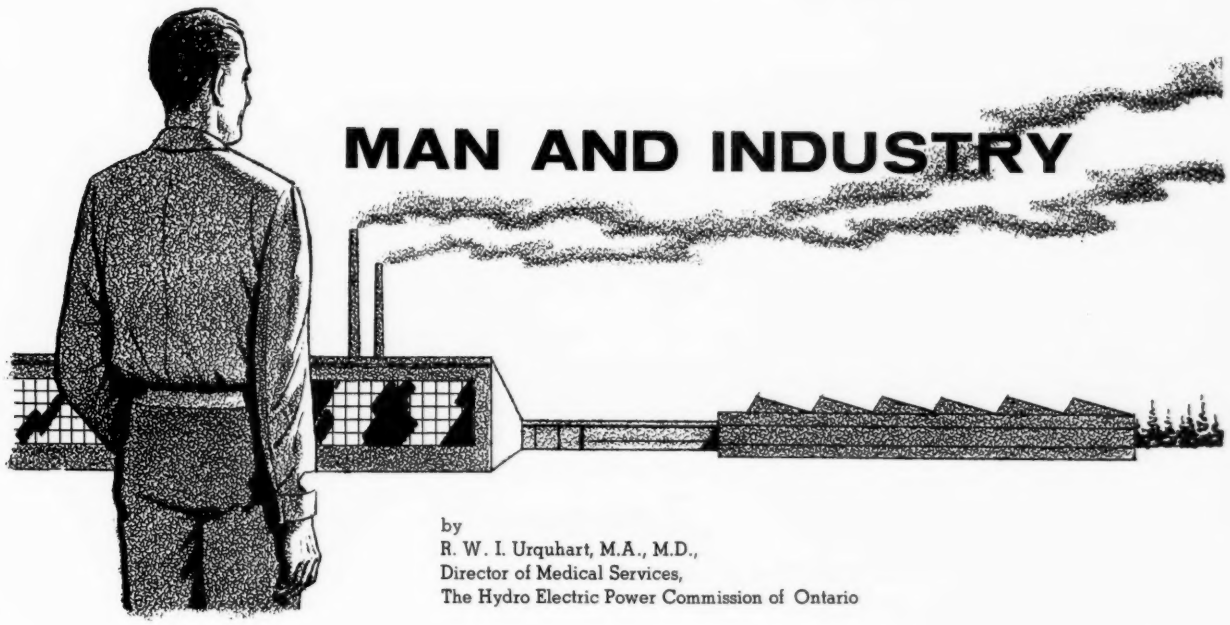

MAN AND INDUSTRY

by
R. W. I. Urquhart, M.A., M.D.,
Director of Medical Services,
The Hydro Electric Power Commission of Ontario

The subject of Man and Industry or the impact of rapid industrialization on a community has been chosen for two reasons; one because it became of interest to me due to my participation in the University of Toronto Round Table on this subject now in its third and final year; and two, because as the study progressed it became evident to me that it was a subject to which we, as industrial physicians, should be particularly sensitive.

A word about the Round Table. It brought together approximately 160 people from many walks of life-industry, business, labour, the church, the professions, the social sciences, the universities and governments. This group met for something over a day in Toronto, during which time background papers were heard and a general plan of action discussed. They then were divided into six groups and dispatched for two days to what became known as impact areas. These were the St. Lawrence Seaway area, St. Catharines, Elliot Lake and Blind River, Malton, Scarborough and the downtown Urban renewal area. You will note that they were all areas in which rapid changes were taking place as a result of the demands of industry in or about them. The groups were, in a word, to examine as well as could be done in the brief time at their disposal, what effect these changes had on the people involved in them. On their return to Toronto each group prepared a summary of their findings. These were then collated by a committee of the Round Table and this material served as the basis for further discussion.

Of all the impact areas two, I think, stood out in the dramatic quality of the changes that were in being; the one, the St. Lawrence Seaway and Power Project, with which some of you are already familiar, and the second, the Blind River-Elliot Lake area where the discovery of uranium had not only galvanized into frenetic activity a hitherto almost uninhabited wilderness, but also swamped a tired old town with hundreds of transient workers. It was to this latter area that it was my good fortune to be assigned.

As I recall it, the opening addresses of the first session of the 1956 Round Table were designed to prepare the minds of the participants for the kind of experience that was ahead of them. It was apparently felt necessary to stress what every industrial physician knows—that man is still the centre of all industrial activity, and that what happens to him is of vital importance. One speaker, an industrialist, pointed out that man has now become the limiting factor in this age of rapid material and technological advance. To achieve the fullest development of our physical resources there must be a corresponding development of our human resources. In other words, the machine has left man far behind.

Another speaker, an industrialist but also a philosopher, Sir Geoffrey Vickers, pointed out that man was important for his own sake—that industrialization was, in effect, a destabilizing force involving man in a series of irreversible changes which alter man's way of life but rarely make for a fuller well being. For example, it changes and restricts his living space—note the congestion of our great industrial centres; it divorces his social from his economic life. We work with one group of people and live with another; it changes his aspirations and alters his concepts of status and success. Note the prevalence of executive suites-broadloom and

drapes—mink coats and chauffeur-driven Cadillacs; it erodes the structure of expectations underlying both his sense of security and his power of prediction. In other words, the more rapid the advance of industrialization the more insecure man becomes. He may build his house upon a hill to enjoy the view but soon finds the view obstructed by a smoke belching factory or a Hydro power line.

It was suggested that the Round Table examine the impact of industrialization on these four areas—physical living space, relation between life and livelihood, ideas of status and success, and sense of security and power of foreseight. This might make it easier to compare the observation as to what was happening to people in the various impact areas.

It was necessary also to urge the participants to develop a research point of view. Here were a heterogeneous group of business men, bankers, industrialists and so on, who for the most part were practical hard headed action-minded men—indeed, they could hardly have arrived at their present status otherwise—but who were rank amateurs at this kind of sociological investigation. It was not easy for them to change from the doing role to the seeking role.

Their competence in their own particular fields, however, gave them points of view of the greatest value to the whole investigation. You have perhaps heard the story of the two men who were climbing a mountain by different routes. They chanced to meet accidentally at a point somewhere near the summit and were gazing across a valley at one of the most beautiful scenes that man could behold. One man said to the other, "Isn't that a lovely view." The other man replied, "To tell you the truth I hadn't noticed it, I was looking at that house up there and was wondering how you could possibly get a hearse up to it if the owner died." According to what a man has in his mind that he will see. What he has not half born in his mind he will pass by and let it remain unobserved.

The strength of the Round Table lay in the fact that its members had well developed minds in many diverse areas and therefore were able to observe what was happening to people in these areas. Its weakness lay in the inability of many of them to communicate directly and effectively with these people. They did not really speak the same language. In other words, it was not difficult for our financial magnates to determine what was happening to money and credit in Blind River and Elliot Lake, but it was difficult for them to find out what the ordinary resident of these areas thought about what was happening to money and credit. It is the old story of communication with which we in industry are all too familiar.

One had to be on his guard. It was not always what was said that mattered but who said it. For example, my good friend on the Hospital Services Commission, Monseigneur Fullerton, was standing by an elevator in St. Joseph's Hospital with one of the Sisters one day when a very young and attractive nurse carrying a new baby walked by. The Monseigneur said, "Some babe, eh Sister", and after a moment the Sister replied, "You know, Monseigneur, if it were anyone else but you I would wonder to which babe you were referring." Fortunately in our group there were many who could judge both the remark and the validity of its source, so that in the group discussions something akin to the truth evolved.

The techniques employed for each impact area were much the same. In one case descriptive comments were supplied by Mr. Frank Joubin—who incidentally was the discoverer of uranium in this area—and Mr. Oswald Hall, who had studied the district as one of the research staff. A decision as to areas of investigation was arrived at and suitable sub groups formed to investigate those in which they were knowledgeable. For example, it was natural that medical care, hospitalization, public health etc., should fall to my lot. We were to interview not only the municipal or other authorities responsible in this field, but also the people who were affected by it. We interviewed people in the homes, the hospitals, the taverns and on the street. Later we met with a group of the town fathers, the Mayor and Council, the teachers, preachers, doctors and priests, as well as representative people in other walks of life. Discussion was free and surprisingly frank. There was no question that we were getting the reaction of the people to the disrupting events which were occurring around them.

What were these reactions? Perhaps before touching on these I had better describe, as briefly as possible, the situation in Blind River before and after the discovery of uranium.

Blind River—prior to the discovery at Elliot Lake—was a quiet backwoods town which literally had been asleep since the woods operations subsided some forty to fifty years ago. Of its population of some 2,500 to 3,000 people, 30 to 35 per cent were English speaking and the remainder French Canadian. Growth had been slow over the years and had resulted in a well straitified community divided on ethnic, religious, social and economic grounds. The largest industry was a mill which employed a large number of workers in the summer. It closed down in the winter and the majority of the young men went north to the lumber camps for the season. There was the usual reasonably adequate separate, public and high schools, a good hospital and an old people's home. A quiet orderly town.

Then in 1953 uranium was discovered at Elliot Lake, some 40 miles away. Blind River became the rail head. Into it poured all kinds of people—miners,

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The Ontario Quebec Industrial Physicians Conference, September 17-19, 1958.

carpenters, labourers, and 'camp followers—all looking for work or profit. They quickly made their presence felt. Housing never really adequate and often substandard, became horribly overcrowded. Rooming houses became packed and often deteriorated. Rents rose to unprecedented heights. Trailers were parked wherever space could be found. With all this congestion water supplies became barely adequate, proper sanitary facilities and garbage disposal just did not exist, schools and the hospital were overloaded and indeed so was the gaol—for every weekend 80 to 100 drunks were hustled off to Sudbury for incarceration, and to add insult to injury, the indigent load on the taxpayer increased at an alarming rate.

No wonder the chief reaction of the people was resentment toward the invasion. There were a few who were able to make money out of the newcomers but to the majority it meant only disturbed living conditions, increased cost of living and a threat to their own security. At this point they could see nothing but disaster for their town since they had no confidence that they could ever benefit from it.

Elliot Lake was the direct opposite of Blind River. It had no past only a future and that future dependent on the future of the mines—a fact of which the people were well aware. The townsite of Elliot Lake is a modern, planned community, to house eventually some 25,000 to 35,000 people. To set this down in the wilderness is no mean task. It lies in its own improvement district of some 369 square miles and includes the majority of the mines operating in the area.

In 1956 construction was going on apace, both at the mines and in the townsite. Whole streets of houses were being built under strict supervision. Substandard housing was not allowed. Schools, a hospital and a hotel were on the drawing boards, and one got the impression that tomorrow's work was being done today.

The 5,000 to 7,000 workers involved in these tremendous projects were housed in trailers or in bunkhouses. There was money in the bank—it was not safe anywhere else. Spending was free and drinking was heavy. The road to Blind River was lined with wrecked new model cars. Indeed, it was a typical frontier mining town in the process of construction, and the mine people were in haste to assure one that all of this disturbance was due to the construction forces and that it all would subside when they departed.

Everywhere one went in Elliot Lake one found a spirit of optimism and a faith in the future of their community. This was to be a great town and they considered themselves fortunate to be in on the ground floor. Few regretted leaving their old home—whether that home had been in Southern Ontario or in one of the older mining camps. The present discomforts would pass and they soon would be established in a permanent home. The only cloud on the horizon was the question mark about the future of uranium and, of course, the present lack of recreational and other needed facilities.

So much for the reaction in 1956. One could see that the impact of rapid industrialization had had a profound effect on both communities. If one were to compare them on the basis of Sir Geoffrey Vicker's four "areas of great importance to human well being", it would be noted that in both communities there was deterioration in physical living space, the only difference being that in Blind River the people could see no hope of improvement for the future, while in Elliot Lake there was every hope of improvement.

In the area of life and livelihood, again great alterations were taking place. In Blind River the well ordered pattern of life could no longer be maintained and at this stage it was difficult for people to adjust to the new pattern. In Elliot Lake, while the pattern of life was presently that of an almost all male construction camp, there was expectation that it would conform eventually to that of a typical company mining community.

In the area of ideas of status and success it was obvious that in Blind River the natives were uncomfortable. They were being exposed to people with values far different from those which they had found adequate for their previous needs. They distrusted the new and were fearful of its effect on their young people. In Elliot Lake, on the other hand, apart from the usual mining town hierarchy, status and success seemed to depend upon the housing situation. The married man in a good house in the planned community had arrived. It should not be forgotten, too, that in a frontier town such as this, competence in hunting and fishing also contributed greatly to status.

Finally, in the area of sense of security and power of foresight, all that has been said before would indicate that the people of Blind River had been thrust from security to insecurity through no fault of their own. The future was not in their hands. In Elliot Lake, on the other hand, many of the newcomers obviously felt more secure than in their previous location—but the nagging fear of the future of uranium was never far from their minds. The majority, however, had faith.

There is not time for me to go into detail in respect to the several other areas of investigation, but perhaps I could refer to the matter of public health. In Blind River the Medical Officer of Health, a highly respected, dearly beloved family physician in his sixties, had, over the years, tried to persuade the town fathers to modernize the water supply, install sanitary sewers, set up garbage collection and so on. He had been unsuccessful. Now with the rapid increase in population he found himself—a tired old man—helpless to provide services which he knew to be essential. One felt sorry for him. Similar

situations existed in other fields of municipal endeavour and a constant struggle was going on between the younger members of council who wanted to go ahead, and the older members who wanted to hold back. They would have liked to have had someone from outside to settle all their problems. In Elliot Lake, on the other hand, planning had all been done from the outside—and while mistakes had been made, particularly in the health field, in time they could be rectified. Perhaps too little in Elliot Lake was left to individual initiative. It was interesting to note, however, that the children living in trailers as they were, were doing very well at school and did not resent the change to the more informal way of life.

In 1957 at the second meeting of the Round Table another visit was made to these two communities by the same group. I think the outstanding difference, as far as Blind River was concerned, was in the attitude of the people. Somewhow during the year a faith in their future had been born although it was not clear as to its basis. Steps had been taken to handle their problems—often in a fumbling and inadequate fashion—but progress had been made. Many of the newcomers were becoming integrated with the community to its considerable benefit. It was interesting, in particular, to find that the horizons of many of the young people had been enlarged to include a university education—something of a rarity in the pre-uranium days. Blind River has been rudely aroused from her long sleep and like Rip Van Winkle was adjusting with difficulty to the new day.

Elliot Lake had grown tremendously. Much that was on the drawing boards on our last visit was now spread out before us completed and in use. Schools, shopping centres, a hotel, a theatre and hundreds of homes—where virtually nothing stood before—a miracle of modern times. Here, I think, the outstanding difference again was in the attitude of the people. The cloud of uncertainty as to the future of uranium seemed to be largely dissipated. The town was going to last and while the people were still satisfied with their trustee form of government, they were hoping soon to develop the usual form of municipal self-government. In other words, they were reaching out for municipal maturity—sure evidence that stability was on its way.

The story is as old as Canada herself and as new as today. Many of you have been part of it. I believe, however, that it is the first time that a serious attempt has been made to document it. Certainly it is the first time in Canada that the kind of things that happen to people as a result of the changes produced by rapid industrialization, have been studied objectively by some of the very people who have been responsible for the rapid industrialization. It is the first time they had been asked what they thought about it all. It has been an educational process and in the end something for the betterment of human well being, very well may come out of it.

As industrial physicians we have always been aware of the impact of industry on people, for it has been our duty to deal with those who are adversely affected by it. As we look toward the future should we not increase our understanding of the basic factors involved in this "impact" and then perhaps we can—by participation in planning—contribute something to its alleviation. I believe that we can.

ARE PERIODIC HEALTH EXAMINATIONS WORTHWHILE?

by
W-Ford Connell, M.D.,
Professor of Medicine,
Queen's University

Early this Spring the British public learned that 150 senior executives of the B.B.C. were going to have a "comprehensive medical examination" at 15 guineas a head. This little news item let loose a whole flood of letters to the Editor of the London Times. They make interesting reading. First of all, the very idea of a *public corporation* using public funds to give *some* of its employees such expensive medical attention, in a country with a comprehensive National Health Service, left some of the writers aghast. The move was defended by the Chairman of the B.B.C., who said that this expenditure was "a small premium to pay towards the maintenance of the health of its trained senior staff". He explained, of course, that its object was to "discover in time any evidence of oncoming illness so that appropriate action could be taken to forestall a breakdown in health". This led to a whole flood of ripostes from some very prominent British physicians. From these letters I quote:—

> "The assumption on which routine examinations are made is that disease may be detected at an early stage . . . it is the firm impression of many of us that the chances of achieving this are small when examinations are carried out annually."

or this:

> "Regular servicing of a motor car may increase its usefulness and lengthen its life. It is tempting to apply the same argument to the human body, but the anology is false—a human being is not a machine."

Or:

> "If an examination is to be useful it must have a reasonable chance of discovering the things of importance, and this is by no means the case, for example, with impending coronary thrombosis or even existing cancer. If something is discovered, it must be curable or no good will have resulted. Further, it must be curable at that time and not curable later, otherwise one might as well wait till symptoms show that there is something wrong. These conditions are seldom satisfied on routine examinations . . .
> Mass radiography for tuberculosis was the outstanding example of correct use and it seems that the momentum of this success has swept laymen out of their depth and dragged some doctors along with them."

There is also the small masterpiece by Hugh Barber:—

> "To the Editor of the Times:
> Sir: "Some people" said the Healthy Man, "recommended a routine medical examination once or twice a year."
> "Yes" said the Doctor.
> "You yourself," said the Healthy Man "could have such an examination without expense and with little inconvenience."
> "Yes" said the Doctor.
> "When were you examined?" asked the Healthy Man.
> "I hardly remember" said the Doctor. "Once, I think, as a medical student, once for life insurance before I got married, and again in the 1914 war for mlitary service."
> "I see," said the Healthy Man, "Thank you."

Well, there are a few samples of the negative view. There were, of course, a lot of sound arguments for the affirmative. Time is short, however, so I shall have to give you my own thoughts on this subject.

It is usually difficult to comprehend changes when one is part of them. Nevertheless, the whole medical profession is keenly aware that extraordinary changes are taking place to-day in the whole practice of medicine.

We are familiar with the remarkable degree of control that has been established over the acute communicable diseases. Most of them have virtually disappeared from the clinical practice of medicine in this country. Infant mortality has fallen to an unbeliev-

ably low level in many parts of the world. Children who used to succumb to cholera infantum, scarlet fever, diphtheria and meningitis, now live to maturity. At maturity pneumonia no longer strikes down individuals in the prime of life. Tuberculosis is coming under control to the extent that many tuberculosis sanitoria are closing their doors. People are living to a ripe old age. With a rapidly aging population, we doctors find ourselves with a whole set of new problems.

For the degenerative diseases of older years, we do not have the specific immunizations and dramatic therapeutic agents which are available for the communicable diseases. Instead, we are dealing largely with a group of conditions whose etiology is unknown or only partly known. When such knowledge is lacking, early detection of abnormality and prompt corrective measures become of paramount importance. Hence, the clinical practice of medicine is becoming more and more involved with preventive medicine, broadly interpreted to include the early detection of disease and eradication where eradication is possible.

The early detection of disease calls not only for prompt attention when signs first appear, but inevitably also for repeated examination of individuals before symptoms or signs develop, or, in other words, the periodic examination of "well" or asymptomatic individuals. You all know that this principle has been so thoroughly dinned into the ears of the public—through radio, television and the public press, that they are coming to believe in health examinations and are now demanding such services from their physicians.

The pediatrician demonstrates well the extent to which clinical practice has changed. It is estimated that today he spends well over half his day's work in the care of well children, examining them at periodic intervals to be sure that all is progressing normally, advising the mother about diet, immunizing the child against an increasing number of specific diseases and, in general, helping the parents to rear happy, healthy children. The pediatrician has, as it were, crossed the halfway mark in this trend that is inevitably carrying the practicing physician more and more towards the care of well people.

Now it is quite clear that all general practitioners are not happy about these projected changes in the pattern of medical care. Some physicians unquestionably resent them, because they find themselves swept into a type of practice for which they have been ill prepared. One often hears it said nostalgically, that the beloved general practitioner of the past has disappeared with his horse and buggy. But would we really want to return to this older order of medical practice? Consider for a moment, the well-known painting of Sir Luke Fildes—which shows the country doctor of a couple of generations ago at the bedside of a child in what is obviously an all-night vigil. The child is acutely and critically ill, the anxious parents are seen in the dim background. The doctor appears to have done what he could to combat the disease and is now waiting, with hope, that the natural recuperative powers of the child will win. It is not unlikely that the child had diphtheria. The scene was a common one even a generation ago. We can honour the physician for his devotion to his calling and to the stricken family. But we would not want to be in his shoes. Today, we would prefer to think of the child healthy and active, having been immunized against diphtheria to prevent the illness in the first place.

Today, I believe, our need is not a return to the general practitioner who was so hard pressed taking care of the sick and who had neither the time nor the means to prevent illness. Rather, our need is for physicians, call them family physicians, who are especially trained in the prevention of disease where prevention is possible and in the early detection of disease so that treatment may be instituted promptly and serious complications avoided.

Actually, of course, industry is way out ahead of the general public in arranging this sort of medical care for its members. Corporations are demanding this type of preventive medicine at an unprecedented rate. The results looked for are very concrete—healthier workers, less absenteeism, fewer emotional disturbances, less loss of valuable personnel because of illness, fewer accidents and compensation claims. Most industries are showing a willingness to spend large sums of money to achieve these aims—as well they might. Already, some at least seem to have convinced themselves that the methods adopted to achieve them are paying off.

An integral part of such company plans is, of course, a programme for the executive personnel—and this always includes as a major feature, *the periodic health-maintenance examination*. In some companies, as you know, this is a fairly simple yearly check-up. In others, it is an involved study which entails admission to a diagnostic clinic for three or four days and which may entail an expense to the company of several hundred dollars. As I have already pointed out, many good physicians have questioned the value of these examinations. Undoubtedly, they can be done in such a manner as to be entirely useless. But what if they are well done, as they unquestionably are in most cases? Then, I think that they have a most useful role in the practice of medicine of the future.

To carry out this type of preventive medicine, the family physician will require, says John Hubbard, Professor of Preventive Medicine at Pennsylvania, definite qualifications for his job:

"Firstly, the physicians interested in the health as well as the illness of his people, must arrange his time

and his practice so that he will get to know not only his patient as an individual, but also to know the family of which the patient is a part. The prevention of progressive difficulty from peptic ulcer may depend less on specific therapy and diet than on the regulation of tensions and stress in the home and the working environment. The prevention of emotional or psychic disturbance in the child may depend not on what is done for the child, but on what is done for the parents or perhaps the grandparents."

"Secondly; the family physician is one who must have special skills in the art of taking medical histories and in the techniques of physical examination . . . while his colleagues who practice in a limited specialty may concentrate intensively on the examination of a special system of the body, the family physician must be aware of danger signals arising from any part of any system."

"Thirdly, observation must be accompanied by a high degree of suspicion. The detective looking for clues is suspicious of everything and everybody. The physician looking for lurking disease similarly learns to be suspicious of any deviation from the norm."

I believe that Dr. Hubbard is right. This *is* the kind of physician we must train for the general practice of medicine.

However, let us now look at this matter of routine periodic health examinations as objectively as possible. How can we prove that individuals who have their health measured periodically in an effort to maintain or improve it, derive appreciable benefit therefrom? It is easy to show that this is true in the case of *some* individuals subjected to such a programme. However, it is legitimate to ask whether the "return" or "yield" on the energy, skill, time and money invested in the repeated examination of supposedly well individuals is sufficiently great to justify the practice. Proper evaluation of periodic health-maintenance examinations requires long-continued and well-controlled studies. Such studies are actually in progress but the results will not be available for some time. For lack of such proof, we must look instead at what happens when large groups of adult males have their first thorough examination. Such an examination reveals the existence of some significant previously unsuspected or unrecognized disease in from one-quarter to one-third of those examined. By "significant" is meant a real likelihood of the condition so described either resulting in some disability or in shortening life. Approximately as many as are found to have new disease, also have significant previously-known disease—and this, in many instances ought, but is not being, medically observed or treated.

Admittedly, quite a number of the individuals in whom significant new disease is discovered, cannot be helped materially. Further, such examinations, even when carried out most skillfully, occasionally precipitate anxiety states and end up doing more harm than good. This is, however, an infrequent problem and its significance is outweighed by the finding of conditions which can be benefitted materially.

A further benefit accrues to many examinees because, following their examination, they seek and obtain indicated medical treatment for previously known and neglected conditions. Some also benefit from the discovery of conditions which cannot be called "significant" from the viewpoint of probable effects on health or longevity. For example, refractive errors or epidermophytosis would not be expected to cause major difficulty; yet they can, and often do adversely affect health.

What "yield" may be expected in the form of significant new disease, when adult businessmen are given health-maintenance examinations for the first time? Of 16,465 thus examined, 13.6% were classed as "completely healthy", 37.5% were found to have significant new disease. When such individuals are re-examined yearly, each recheck produces a crop of new diagnoses but, as might be expected, with diminishing frequency. However, one author reports the finding of significant new disease at each re-examination in from 13 to 21% of those examined. Figures like these aren't quite as impressive as the statement of the Minnesota Medical Foundation that 45% of 147 carcinomas discovered in 6,754 individuals over 45 years of age were found at the time of *re-examination* over a 6½ year period rather than at the initial examination. Such a yield would in itself justify annual examinations, in men of this age group.

The greater likelihood of a favourable outcome when certain diseases are picked up at relatively early stages is documented by the same organization which reports that 95% of 18 persons with asymptomatic rectal or colon cancer were still living at the time of their last check whereas only 37% of those whose rectal or colon cancer were symptomatic survived to the date of this report. (The period of follow-up was admittedly short).

One quite important difference between the thorough medical examination of the supposedly healthy and those who are ill requires emphasis. Clinicians dealing largely with sick people appreciate the frequency with which a skillfully taken history leads to a preliminary impression which is subsequently confirmed by physical, x-ray or laboratory examination. But, in the examination of the supposedly well person, it is most often the physical, x-ray or laboratory examination that leads to significant new diagnoses. This is true, even when thorough histories are skillfully obtained from cooperative examinees. It is no more than we should expect when it is realized that a vast majority of these conditions are still entirely asymptomatic when discovered. For example, patients found to have diabetes on such health

examinations are without any symptoms suggestive of this disease even when their histories are reviewed with them in a suggestive and leading fashion after diabetes has been indisputably demonstrated in the laboratory.

Here are some figures quoted by Roberts in a recent review: One author states that the source of the initial information leading to the diagnosis of a newly discovered disease came from the history in 15%, the physical examination in 62% and the laboratory findings in 23% of cases. Another, credits the history in only 6%, the physical in 78% and the laboratory in 16%, while a third found the history of primary value in 12%, the physical in 39% and the laboratory in 49%. In commenting, Roberts says: 'The observation that the interview with the patient is of realtively less value in preventive than in therapeutic work should not, of course, be construed as advocating less skillful histories in the evaluation of the health of ostensibly well persons." He suggests, however, that when time does not permit a really extensive history-taking by the physician, a questionnaire type of history may be completed by the patient, with subsequent elaboration of positive and significant negative points by the physician. Indeed, a really good questionnaire, like the Cornell Medical Index, may provide the clue leading to diagnosis—a clue that might otherwise be overlooked. Doctors are fallible and can occasionally forget to ask about a specific symptom. For example, an early mild carcinoma of the larynx might perhaps have given rise to only one or two mild and transient episodes of hoarseness which the patient might not consider worth mentioning. But a questionnaire will not forget to ask about hoarseness, and it takes only a moment or two for the physician to glance over such a tabulation for positive entries. In fact, such a form might advantageously be used as a check on thoroughness, even when a complete history can and will be taken by the physician.

It goes without saying that, in health-maintenance work, the entire success of the project depends on a most thorough and complete physical examination. Omission of funduscopic examination or of palpitation of the pulses in the legs will compromise any physician's effectiveness but it will have a greater adverse effect in the "yield" of health-maintenance work than on that of most types of medical practice.

Physicians who streamline certain steps out of their consistently used examination may rationalize that such are still done "on indication". But of course, most of the steps considered as part of a good physical examination are not only justified but actually indicated for consistent use, even in the absence of any good clinical indication in the specific individual's picture. Thus, rather than debate the indications for looking into the rectum of an adult male, we might better ask ourselves what are the indications for *not* doing so, in view of the consistency with which asymptomatic adenomas are found there and the respected opinions that most rectal carcinomas arise in such lesions.

What laboratory or x-ray work shall we include in our basic examination? The answer to this depends on many factors—age, sex, location and size of the group studied, the interval since last study, etc.

Dr. Leigh Cook of Pittsburg has this to say: "The medical profession, in being asked to perform periodic health examinations on industrial employees (and executives) must be careful in its honesty and its integrity as to what this physical survey is doing, can do, and cannot do, for the health of the examinee." He is in favour of a strictly limited examination, albeit, a good one. In addition to the basic clinical routine he suggests only a blood count with differential smear, a complete urinalysis, an x-ray of the chest and an electrocardiogram. This is what he thinks can be achieved by such an examination:

(1) Firstly, it succeeds in getting the individual concerned to see a physician. In the case of some people this is a major triumph, and an important step in health prophylaxis. As he says: "Many are not willing to spend money for medical advice until they have an actual pain or ache." When such an individual talks to a good physician, he begins to realize that his health is important, not only to himself but to his corporation. The interview affords of course, the opportunity for a short lecture on good and bad health practices.

(2) Secondly, there is a certain number of silent disease processes that will be uncovered—such conditions as diabetes, hypertension, progressive arteriosclerosis, tuberculosis, certain blood dyscrasias, and tumors. If these conditions have been truly asymptomatic, their early discovery permits of a considerably better prognosis for cure or for control.

(3) Another not inconsiderable advantage of such periodic health surveys is that persons with known physical disabilities may be reassured concerning their success in handling their problems. For example, the individual with a healed coronary who has begun to wonder if he is doing as well as might be. Reassurance from the physician at the time of such an examination may be of great value.

(4) Finally, the periodic health survey provides continuing records for future reference. From these, much important information may be derived, both from the group data and from the individual. For the individual, they constitute a baseline from which future findings may more accurately be assessed.

These aims of Dr. Cook's are realistic and I think they are worthwhile. Such a limited examination has, of course, no place in the study of the individual with

specific complaints. It is obviously not the function of a periodic health survey to diagnose such a case. Such individuals require detailed diagnostic studies with special emphasis on the organ or system that appears to be implicated.

Should we be satisfied with Dr. Cook's routine, or some equally simple one? Others include much more, blood sugars, B.U.N.'s, PSP tests, liver function tests, serological tests for syphilis, the B.M.R. the blood cholesterol, the sedimentation rate, full x-rays of the G.I. tract. No doubt such an examination is very impressive to the person who undergoes it, and who has to travel from one lab technician to another, to take castor oil and enemas, and who consumes two, three or more days in the process. But is it worthwhile in those who have no specific complaints?

I think most of us would be willing to dispense with routine blood sugars and most other blood chemistries. I would be happy with simply a Hgb or an haematocrit, provided a stained smear could be well scrutinized. At least on the initial examination, I would include STS and I would use the sedimentation rate as a useful and simple screening test. For the blood cholesterol, I have a special bias—and I would include it also. This test has, of course, a wide normal range. But when this range is definitely exceeded, I would wish to know why. Perhaps we might find some other evidence of hypothyroidism. More likely, we would find we were dealing with a familial hypercholesterolemia. Especially if combined with a bad family history, this would point to the great lieklihood of premature atherosclerosis and to the desirability of taking steps to modify, if possible, the demonstrated abnormality of lipid metabolism. On the other hand, we might find that an individual with moderate hypercholesterolemia was addicted to a highly atherogenic diet-rich in animal and especially dairy fat. In such a person, good dietary therapy would surely be of real prophylactic value.

As a cardiologist, ! would be most happy to have a series of cardiograms on a group of individuals who might be expected, with some frequency, sooner or later to develop symptoms of coronary disease. It goes without saying that findings relative to blood pressure elevation and adiposity are also highly significant from the viewpoint of the future health of the cardiovascular system.

We may now ask whether x-rays of the gastrointestinal tract belong in a periodic health examination routine. Today, fear of cancer amongst lay persons is great. I am sure that in most instances G.I. x-rays have been included in the examination routine to reassure the examinee that he has *not* got cancer of the stomach or bowels. Yet most good authorities are agreed that there is no place for such studies in the routine survey of presumably well persons. The situation with regard to the lower segment of the bowel is quite different.

Dr. Thomas Almy (Cornell) has this to say:

> "If one were looking for early and remediable disease, and if one had neither the time nor the resources to spend on the complete examination of the well population, it might be reasonable to neglect the examination of the abdomen altogether and to spend the time and the resources thus saved on a thorough examination of the rectum and lower sigmoid. The colonic symptoms of numerous persons with irritable colon will demand this as a diagnostic procedure and among the truly symptom-free population the incidence of findings in this area will be extraordinarily high. (He mentions haemorrhoids, and should certainly have mentioned prostatic disease). He goes on to say: "The outstanding reason for emphasizing the importance of routine examination of the rectum and lower sigmoid is the rectal polyp . . . in a series of over 5,000 routine protoscopic examinations of men 45 years and over . . . more than 6% were found to have benign polyps and 0.5% had cancers. Thus, approximately 25 persons with cancer were found in this group. All these people were examined without any symptomatic indications or any indication on physical examination that there would be disease in the lower bowel.".

Before leaving this important field, I would like to advocate too, the routine testing of a stool specimen for occult blood. This can well be obtained during digital examination of the rectum. Only strongly positive tests can be considered significant. They require for their production at least 10 m. 1 of shed blood on any single occasion, and they are not produced by interfering materials such as iron or red meat in the diet.

I have as yet said practically nothing about one very important aspect of the periodic health-maintenance examination and that is the opportunity it gives for health counselling. This can be particularly important in the psychosomatic field—although it is vital in the management of such problems as overweight and arterial hypertension. As one authority says: "As the patient acquires confidence in his doctor, he talks more about himself, his job and his problems. Where he may be unable to "let off steam" and to discuss aggravating situations in the office (or home) he uses the impersonal ear of the physician as a sounding board."

It is often at this stage that the internist may do most for the patient in diagnosing causes for psychosomatic complaints, early diagnosis of such ailments may avert more serious trouble, both for the company and for the individual, later on."

One company officer claims that his organization's health plan paid its best dividends after the first five years of operation. By that time, the desired relationship between the examining doctors and the examinees had been established.

Time is short—but a few words should be said about the benefits which can accrue from the study of group records. In the past, the results of a lot of the examinations that have been carried out have been wasted, in so far as the compilation of data for medical research

is concerned. In part, this was because of the confidential nature of the examinations (but this is scarcely a valid objection where anonymous group statistics are concerned). In part too, it was because a given company might patronize several physicians or clinics and it made it hard to get a fair-sized sample from any single examining agency.

A compilation of group pathologies do have a number of useful functions. They not only help to sell a programme of periodic health—maintenance examinations to both company and executive—they should also, in time, prove the comparative usefulness of various examining methods.

As for their research value, I should like to quote Professor Theodore Ingalls, who writes in a personal communication: "As far as industry goes, I think that the occupational (and hence environmental) differences in disease distribution will significantly illuminate whole areas of future medical progress. For observed differences, when statistically significant, would ordinarily be significant of causative environmental factors (at least when host factors can be ruled out)."

I believe that periodic health-maintenance examinations *are* worthwhile—they should be worthwhile from the point of view of the company that sets them up as part of its executive health programme. They should also prove immensely valuable from the viewpoint of medical research. And, of course, they may also achieve their primary aim of maintaining or improving the health of the individual who receives them. I believe that the family physician should encourage them as part of his service to his patients. If, however, they are carried out as part of a company health programme, and at the company's expense, it would still be a good idea to have them carried out by the individual's private physician, if at all possible, and if not, to see to it that there is full cooperation between the examining physician or clinic and the patient's private physician.

I feel very strongly that the results of these examinations should be held in the same confidence as exists in any other physician-patient relationship. When a condition is found that influences an individual's future working capacity, or which will lead inevitably to an upset in the company's management programme at some measurably future date, it should not be difficult to persuade the patient that his company is entitled to at least a general report on the situation and its implications.

There is one last thing that needs to be said. Physicians are not prophets, and our methods of patient-study are far from perfect. A patient may receive a most careful study today, pass with a clean bill of health and die of a coronary next week. A cancer of the prostate may develop within six weeks of a negative rectal examination and be far advanced when the next yearly checkup date rolls around. President Eisenhower's case in an excellent example of the difficulties inherent in the practice of prophylactic medicine. No one, I suppose, can have had his health more closely watched. Yet he had, in close succession, a coronary, an emergent abdominal illness and a stroke. No programme of periodic health appraisal can *guarantee* continued good health. But, if it is properly carried out, it can do much good—in the teaching of better health habits, in the opportunities it affords for reassurance concerning unnecessary phobias, and actually in the uncovering of a considerable volume of truly remediable conditions which, if allowed to progress, might lead to serious disability or even to death. Let us be quite sure that not only we, the physicians carrying out such a programme, but the company setting it up, and the persons receiving the examinations, realize the scope of our study, and its limitations. Within these limits, the benefits of periodic health-maintenance examinations are very real and very worthwhile.

FRONT LINE PSYCHIATRY

by B. H. McNeel, M.D.
Chief, Mental Health Division
Ontario Department of Health

I suppose that in ordinary peace time circumstances anyone who would draw analogies between military and civilian activities would be classed with the old soldier who continues to fight the old battles all over again. Considering the present state of the world such analogies may not be considered to be quite so inept as they might be in more settled times.

The industrial physician has something in common with the R.M.O. (1) Both have the same general aim—to keep men fit and in action. (2) Both have a similar problem imposed by a dual responsibility to the individual and to the organization that employs them. (3) Both have the same function—to give first-aid, in this case psychiatric first-aid, to casualties or potential casualties.

Front line psychiatry does not require the classification of patients in diagnostic categories. Consequently, I will make no attempt to deal with the fifty or more syndromes listed in the classification of psychiatric disorders.

Front line psychiatry does require an evaluation of the individual and of the situation with a view to deciding:

(1) Whether he can carry on under the existing circumstances with a reasonable amount of support and simple treatment;

(2) Whether the circumstances of his service can be changed sufficiently to relieve his distress so that he can continue to do a job;

(3) Whether it is really necessary for his own good and/or the good of the organization to remove him from the situation.

One principle of military psychiatry was that each casualty should be treated as far forward as possible. This arose out of the experience that the farther a man was removed from the scene of action the less likely was his return to it. This has no exact parallel in civil life since breakdown is not so closely related to occupational trauma as in the services. However, we have adopted a similar principle when we say that, if possible, a patient should be treated with a minimum of social dislocation, i.e. without removal from the job, from his home, from his community.

We recognize that both work and social support can be useful agents to assist the stabilization of the mentally and emotionally disturbed. The trick is to know how to use them for this purpose. Often the resourceful medical officer who understands the patient and his situation will have a better idea how to use these agencies than some remote specialist. Sufficient recognition has been given to the therapeutic value of work, of acceptance by the group, and of social interaction, to lead to the inclusion of these elements in the treatment program of psychiatric hospitals under the heading of milieu therapy.

The non-specialist who attempts to keep his patient on the job may be subjected to criticism for retaining a partially incapacitated or disturbing individual on the job, or he may wonder himself whether he is depriving his patient of needed expert assistance. While there are undoubtedly some physicians who are temperamentally unsuited to deal with psychiatric problems, I feel sure that most physicians who are really interested in people as people can acquire considerable facility in dealing with them, and can also learn to distinguish with some

confidence between those who should be referred and those whom they should manage themselves. A careful work-over with a consultant of a few representative cases will add considerably to the physician's competence. In the civilian situation it is becoming easier to obtain an expert opinion though in some localities this may still be quite difficult. Even with the best resources the physician will have to make many of his own decisions, and in some cases will be forced to a decision simply by the fact that the employee will refuse psychiatric consultation or assistance.

In a discussion group held last spring the question was raised whether every patient showing recognizable psychiatric symptoms should not see a psychiatrist. A case was cited by a physician, who had had some psychiatric experience, of a patient with quite definite delusions about herself who had been kept at work by supportive treatment consisting principally of brief interviews, about every two weeks or so, in which she aired her troubles and received some reassurance. We considered this to be good management because the physician had recognized that although this employee had some rather obvious psychotic symptoms she was tolerated by other employees, her efficiency remained at a steady level, she showed little real anxiety or other emotional turmoil, and her symptoms were not progressive. (I might say that one of the good features of the management of this case was that the employee was not subjected to too much pressure to be "normal", whatever that may be. In our culture, we are not inclined to be tolerant of people who are "different". Our very attitudes toward such people may aggravate their unusual behaviour.)

I think of the stabilized chronic psychotic patient as partially disabled rather than as ill and believe that it is good practice to keep such people employed within the limits of their residual abilities. (A shift of emphasis from disability to assets may lead to quite a different appraisal of the partially disabled person.) There are, of course, the patients who show such emotional fluctuations and exacerbations that close supervision is required to forestall crises. In the majority of cases, the hazard is not great. By and large the persons who have committed acts of violence due to a psychosis are persons who have never been formally identified as being mentally ill, though their fellow workmen may have labelled them as moody, odd, or "ornery". In many cases, the outburst has probably been precipitated by teasing or other provocative behaviour on the part of fellow workmen. The safety factor lies in being aware that a problem exists and in the proper evaluation of the person's state and probable responses to the situations likely to arise.

The psychotic employee may present one of the more obvious but not the most frequent psychiatric problems, to the industrial physician. In the Army, psychoses constituted less than 10% of the psychiatric problem.

Much more frequent are the people who are likely to be labelled complainers, lead-swingers, malcontents, soreheads, troublemakers, neurotics, loafers, etc.

Some of these will come to the attention of the physician because they seek help themselves, others because they are sent. Generally speaking, the chances of helping such an individual are much greater if he comes of his own accord. The physician has to keep in mind that the layman's idea of an acceptable approach to a doctor is that it must be with a physical complaint. Consequently, the patient who comes to the doctor usually complains of a physical symptom even though the underlying problem, conscious or unconcious, is an emotional one. It is of importance to determine not only what is the significance of the symptom to the doctor, but also what is the significance to the patient. If it is apparent at the outset that the patient has consciously used a physical symptom to gain an interview, the doctor may very well open up the discussion by saying "what's the trouble?" or "What's really bothering you?" This manoeuvre has to be used with some discretion unless one is quite sure that the answer is close to the surface. Otherwise, it may be interpreted as belittling the patient's complaint.

If the patient continues with a presentation of physical symptoms then the obvious thing to do is to investigate them by a thorough functional inquiry and physical examination, but not by laboratory or special examinations unless indicated. It is important to go through the whole examination at once, without comment, exclamations of surprise, "hum-hum"ing, or puzzled or wise facial expressions. When the examination is completed, it is important to find out what the patient thinks is the trouble. Don't be put off by the comment "That's what I came to find out." He has formed some opinion or some fear, no matter how tentative it may be. Find out gently what it is and you have opened the first door to his feelings.

The nature of the symptoms may give a lead as to the type of disturbance that causes them. The common symptoms of ordinary anxiety tend to be diffuse, affecting any or all systems and reflecting a disturbance in muscle tone, in circulation and in secretion, e.g. tension, weakness, tremors, sweating, palpitation, tachycardia, dyspepsia, frequency, etc. If the patient's attention has become fixed on his symptoms, a simple but factual explanation of what is happening may be useful. Illustrations of normal reactions to anxiety can be given, e.g. tension before a big game, shakiness and tachycardia after being almost hit by a car. The main idea to get across is that life situations and problems have an effect on our sense of physical well-being, and can

cause disturbing symptoms. In giving illustrations, one should attempt to choose common experiences, but experiences which are as close in nature or circumstances to the patient's present reaction as possible.

Not long ago, I had occasion to refer a professional man with acute anxiety and chest symptoms to a very able internist who is well versed in the evaluation of psychosomatic disorders. I was surprised later to learn from the patient that while he had been temporarily reassured by a negative report, he still felt he had a cardiac disorder because his symptoms continued. No attempt had been made to explain the origin, or perhaps I should say the mechanism of the symptoms. Possibly one attempt at explanation would not have been enough, but it would at least have given him some basis of understanding how he could feel distress in the absence of any disease process.

Some of the findings of the fuctional inquiry may give a lead as to the kinds of situation in which anxiety develops, e.g. time, location, and circumstances of onset, exacerbations, etc., and situations in which the patient feels better. (It has to be kept in mind that anxiety provoking situations may also be situations that evoke symptoms of structural disease. It is quite possible for physical and psychological disorders to exist concurrently.)

The pattern of situations which cause trouble may give a clue as to the basic emotions involved—fear or insecurity, frustration, hostility, guilt or conflict. To understand such reactions, it is necessary to keep in mind that emotion-provoking situations often have a "private meaning" to the individual. This is why it is frequently difficult to understand why he feels this way. A perfectly normal order may provoke resentment in one man whereas others accept it quite readily. Another man may experience fear in a situation that does not seem to anyone else to be threatening. The over meticulous person may feel guilty due to a minor oversight or a minor criticism that would not be noticed by others. These reactions occur because the event or the circumstance is loaded with a significance for this individual that it does not have for others.

Often these patterns are habitual and the distressing meanings rooted in early experience. The man who habitually has difficulty with authority may be suffering a carry-over from a poor relationship with his father. Conditions in this category are usually matters to be dealt with by the expert psychotherapist, and not to be explored in detail by the non-specialist. One of the principal reasons for avoiding the exploration of deep-seated conflicts is that the release of anxiety may be so intense as to be more than the patient can handle. The physician must be prepared for this and able to manage the situation.

Without going into the early origins of such reactions, the physician may be able to give a good deal of help by:

(1) listening to the patient's account of current situations and experiences that cause disturbing responses;

(2) helping him to see that there are other ways of looking at the situation, and other possible ways of feeling about it;

(3) exploring some of these with him;

(4) helping him to build up confidence by developing some of his assets and skills, social, occupational, recreational.

All of these things are to be done by keeping direct advice to a minimum and by getting the patient interested in examining the current situation and in discovering his potential resources.

To do this skillfully the physician will have to give attention to and acquire knowledge about the variety of ways in which people think, feel and act and will have to have some appreciation of the resources within the human being on which he can call.

In the long run the most successful physician is one who has a philosophy of healing that will be effective in treating the wounds caused by the "slings and arrows of outrageous fortune". The person who has this conveys is quite unwittingly to his patient fully as much as by conscious verbal expression.

All of this of course requires time. If the physician has identified the problem as basically emotional but cannot or does not wish to take the time to carry out this type of procedure, or if he has done his best at it and senses that a deeper therapeutic procedure is required, he should refer the patient to a specialist in psychiatry.

The depressed patient presents a somewhat different problem. In general he is slowed down and has lost pleasure in the things that he usually enjoyed. He may have stopped smoking because tobacco tastes like grass and stopped eating as usual because his food tastes like sawdust. His sleep has probably become irregular. He presents the picture of fatigue and in many cases the differentiation between depression, chronic fatigue states and such conditions as post-infectious fatigue is difficult to make. Usually however, the fatigued patient feels a little better after a rest and usually he wants to make the effort to do something while the depressed patient couldn't care less.

If you identify a case as a probable depression, it would be just as well not to attempt much in the way of psychotherapy, even simple reassurance. Agitated depressions are very complaintive but not susceptible to reassurance. Quiet depressions will probably only sink deeper when told to "buck up", that "everything will be all right". The best reassurance for the depressed

patient is in the manner of the physician rather than in his words, a manner that is quiet, attentive, accepting and that implies that help will be provided.

The depressed patient is potentially suicidal though fortunately the incidence of suicide is not high. Prompt psychiatric assistance is usually indicated and usually the difficulty in getting the patient to agree to see a psychiatrist is not as great as is anticipated.

So far we have talked of patients who complain of symptoms or show some evidence of distress. A different group are those who show evidence of disturbance in unacceptable behaviour. Many of these are chronically maladjusted people with hair-trigger, impulsive responses, some are character disorders that are completely egocentric and void of social responsibility, some are actively anti-social, aggressive and hostile.

The character disorders that are commonly known as psychopathic are seen in people who lack built-in controls and a feeling for other people and social values. Therapeutic endeavours are not notably successful in bringing about improvement. However, some of the milder forms do eventually mature with age and probably in response to constructive social influences. A proportion of the less deeply disturbed individuals of this type may form strong personal loyalties to a hero-figure who then provides a source of control of one sort or another depending on his own character. Persons with character disorders get along better in certain settings than in others and perhaps do best in certain occupations to which they seem to gravitate in considerable numbers.

Probably the majority of people who present significant problems of behaviour are neither character disorders nor psychotics. Some may suffer from a neurosis and many are exhibiting transient disturbances which may be considered as stress reactions or exaggerations of normal behaviour.

Many of these disturbances are direct expressions of emotion which are exaggerated but more or less appropriate to the actual situation e.g. fear or hostility provoked by an actual threat. Some are secondary, as the hostility or resentment arising from frustration. Some are defenses against disturbing emotions, as the fool-hardiness or bravado shown by a basically fearful insecure person or the aggressive self-justification shown by a guilty person.

When these conditions arise in a situation that is not abnormally stressful one may infer that the personality is immature or neurotic or otherwise predisposed. However many of these individuals may be helped a good deal by being given an opportunity to discuss the situation and analogous situations quite frankly.

In the foregoing I have indicated some of the things a physician may do. Before closing I would like to say a few words about his attitude. It is well to keep in mind that irrational behaviour as we usually use the term simply means behaviour that we don't understand. It is surprising how logical it appears when we begin to get some idea of the assumptions and experiences that lie behind it. In order to obtain a clearer understanding we have to develop a repertory of possible explanations. Instead of jumping at the conclusion that a specific act or specific symptom has a specific cause we have to consider a rather wide range of possibilities. Also in seeking solutions we have to have a repertory of possibilities from which to make an appropriate selection. Every physician has sufficient opportunity to build up, by observation and reflection, a useful fund of experience. This, of course, should be checked by reference to sources of special information.

People in the scientific field, including many psychiatrists, would disclaim any reliance on intuition. However, I feel that any skilled clinician depends a good deal on intuition if by the term we mean subliminal perception. I believe that intuition can be cultivated by an alertness to the "presence" of each patient. This kind of awareness is achieved by giving full attention to the patient at this moment, excluding all distracting influences. This is something like "empathy" —feeling your way into the experience of the patient though you may have difficulty describing it in words.

If you were to ask me for brief general rules I would suggest the following:

Observe the patient carefully.

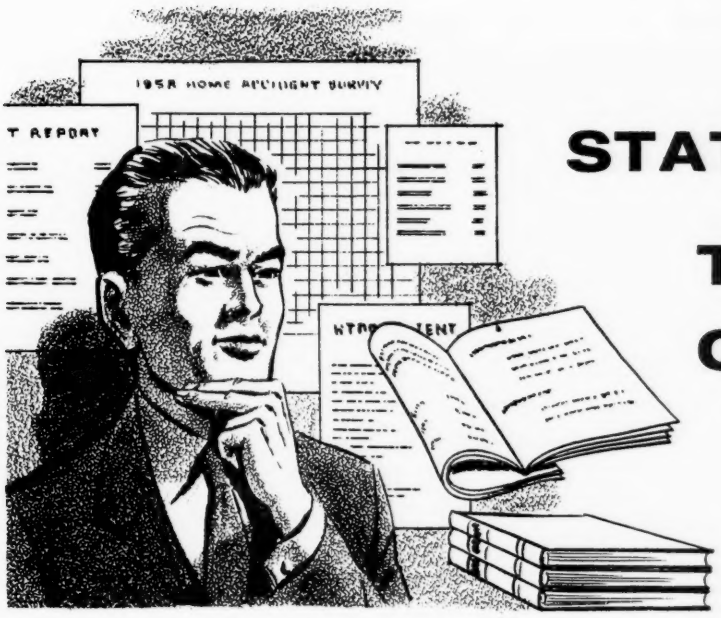
Reserve judgment.

Preserve the patient's self-esteem.

Deserve the patient's confidence.

I would also like to add Bleuler's attributes of the good therapist which are almost impossible to attain:

"Patience, calm and inner good-will—three things that must be absolutely inexhaustible".



STATISTICS . . . TRUTH OR FICTION?

by
G. A. Sinclair, M.D.,
Assistant Medical Director,
Imperial Oil Limited

In preparing this talk on "Statistics—Truth or Fiction" I read among other things, a book by Darrell Huff entitled "How to Lie with Statistics". It is a sort of primer in ways and means to use statistics to deceive. It is a useful manual for swindlers. He justifies the book in the manner of the retired burglar whose published reminiscences amounted to a graduate course in how to pick a lock and muffle a footstep. The crooks already know these tricks; honest men must learn them in self-defence.

Huff points out that you can scare yourself to death with statistics on any kind of transportation . . . if you fail to note how poorly attached the figures are.

In a recent year more people were killed travelling by air than in 1910. Therefore, it is said modern planes are more dangerous. This is nonsense. There are hundreds of times more people flying now than in earlier years.

It was reported that the number of deaths chargeable to steam railroads in one year was 4,712. That sounds like a good argument for staying off trains, perhaps for sticking to your automobile instead. But when you investigate to find what the figure is all about, you learn it means something quite different. Nearly half those victims were people whose automobiles collided with trains at crossings. The greater part of the rest were riding the rods. Only 132 out of the 4,712 were passengers on trains.

Medical statistics are baffling to the majority of us. No matter how great an aversion we have to them, we are forced to accept the fact that the solution to problems in clinical and preventative medicine must eventually depend on figures. Should we dislike statistics to the point that we wish to ignore them, we ultimately find that we describe our successes and failures in terms of numbers in spite of our convictions.

Some difficulties are encountered in presenting figures. In the first place, they are often too few in number or not sufficiently detailed to carry weight in interpretation. Secondly, few medical men are interested in acquiring the training to maintain and interpret statistics and check their significance. Thirdly, insufficient planning is done prior to collecting and assessing figures for study and interpretation.

The Concise Oxford Dictionary defines statistics in two ways:
1) as numerical facts systematically collected; and
2) as the science of collecting, classifying and using such facts.

It should be apparent that the statistical techniques that have been effective in the study and understanding of problems in clinical medicine should be equally helpful in the research and practice of occupational medicine. There is one outstanding difference to consider. In clinical medicine the patients are acknowledged to be ill. In occupational medicine, the subjects or employees are usually stated to be healthy and at work.

In the Medical Department of Imperial Oil Limited, there are four main groups of facts that are collected and analysed statistically:

1) Employee absenteeism due to sickness or accident.
2) Deaths among employees.
3) Medical examinations performed on applicants and employees, and
4) Employee visits to Health Centres.

For the purpose of this talk, we shall confine the discussion to the first group—sickness absenteeism.

During the year 1957, there were 18,737 reported cases of absenteeism due to sickness which included injuries. The source of the information is the Monthly Sickness Absentee Report (Form Med. 4) prepared in every location by the local Employee Relations office. The form is then passed to the local Health Centre for the addition of diagnostic information and sent to the Medical Department at Head Office.

For the purpose of coding, we have adopted the only code designed for statistical use which has any degree of general acceptance, that is "The International Statistical Classification of Diseases, Injuries and Causes of Death" prepared under the auspices of the World Health Organization and revised in 1948.

The completed Monthly Sickness Absentee Report Form contains pertinent information about each absence that serves to identify the individual—such as name in full, age, service and section. It indicates when the absence begins and ends, shows the total number of calendar days absent and, when applicable, the total number of days spent in hospital. It states if the attending physician has submitted a disability certificate, what the outcome of the absence was, such as return to work or pensioned, and if the injury or illness was due to industrial or non-industrial causes. The remainder of the form is for confidential information and includes the diagnosis as well as its code number.

The reports are reviewed by the medical statistician and the information transferred to I.B.M. punch cards, a card being prepared for each completed absence. By passing the cards through a sorter, it is quite easy to arrive at the number and duration of absences for each location. From this data, the frequency rate, disability rate, severity rate, and non-effective rate for each location may be determined. It is also possible to summarize the absences for each individual employee.

In comparing sickness absentee rates with those of other companies or industries, it is important that what is meant by the term "sickness absence" be clearly defined. Some companies do not include one, two, or three day absences as they are frequently not certified by a physician, and may be influenced by working conditions, home conditions and morale.

Other companies do not include up to seven day absences, as the costs involved in these absences are covered by local management in operational costs. Many companies include only cases of sickness absence that have been medically certified.

In some firms, cases of sickness absence are excluded from their report when the time lost is in excess of regular sickness benefit provisions. Prolonged cases, such as those of pulmonary tuberculosis, that are likely to return to work, are not included by some companies after the normal sickness benefits have been used up.

To illustrate how these factors may influence sickness rates, we have calculated the Company totals based on the sickness absenteeism for 1957. I should explain that it is our practice to include *all* sickness absences of one day or more, and for the *full duration* of the absence while the individual has employee status.

In passing, I might mention that since the inception of our Medical Department in July, 1947, we have recognized alcoholism as an illness, and any lost time for treatment is included in sickness absence figures.

The rates used in explaining sickness absence are arrived at as follows:

Frequency Rate	$\frac{\text{Number of Absences X 1000}}{\text{Average Population}}$
Disability Rate	$\frac{\text{Calendar Days Lost}}{\text{Average Population}}$
Severity Rate	$\frac{\text{Calendar Days Lost}}{\text{Number of Absences}}$
Non-Effective Rate	$\frac{\text{Calendar Days Lost}}{\text{Average Population}} \times \frac{1000}{365}$

(This can be readily interpreted as the number of people per 1000 absent each day)

In this Company, there were 18,737 absences losing a total of 126,895 calendar days. The frequency rate—that is, the average number of absences per 1000 employees per year, was 1268.3. The disability rate—that is, the average number of calendar days lost per employee per year—was 7.6 days. The severity rate—that is, the average number of calendar days of disability per absence—was 6.8 days. The non-effective rate—that is, the average number of employees absent per day per 1000 employees due to sickness or accident—was 23.5.

The non-effective rate is probably the one that is most readily understood and appreciated by managements. In the above instance, management would need to make provision for 23 or 24 additional qualified or trained employees daily on any work requiring 1000 employees constantly on the job. This means that double salary is being paid, one for the sick man, and one for his replacement.

Referring back to our statement that it is important to be fully informed on what is included in any reported figures, we shall now attempt to show you how the above non-effective rate may be influenced by excluding certain figures from the report.

At this point slides were shown to illustrate the following facts:

If 1 and 2 day absences are excluded 7,626 absences remain accounting for 112,558 lost calendar days and reducing the non-effective rate from 23.5 to 20.8.

If absences of 7 days or less are excluded 2,804 absences remain accounting for 91,773 lost days and reducing the non-effective rate from 23.5 to 17.0.

Excluding absences not medically certified even though some were less than 7 days, 4,704 medically certified absences remained losing 94,003 days. This reduced the non effective rate from 23.5 to 17.4.

Excluding time lost because of prolonged absences such as the treatment and rehabilitation of tuberculosis, the non-effective rate was reduced from 23.5 to 22.4.

If all medically certified absences of eight days or more are considered (that is excluding absences of 7 days or less as well as absences not medically certified) the non-effective rate is reduced from 23.5 to 16.0.

If now from this combination that portion of the absence when the employee is not eligible for benefits is excluded (that is excluding absences of seven days or less, absences not medically certified and the time lost in absences in excess of regular benefit provisions), the non-effective rate is reduced from 23.5 to 14.4 which is about 60% of the original figure.

To make the issue still more confusing, the rates may be calculated by using working days rather than calendar days. The effect it has on the non-effective rate for all sickness absences and after the subtraction of the combined exclusions, increases the non-effective rate by 10-13%, e.g.

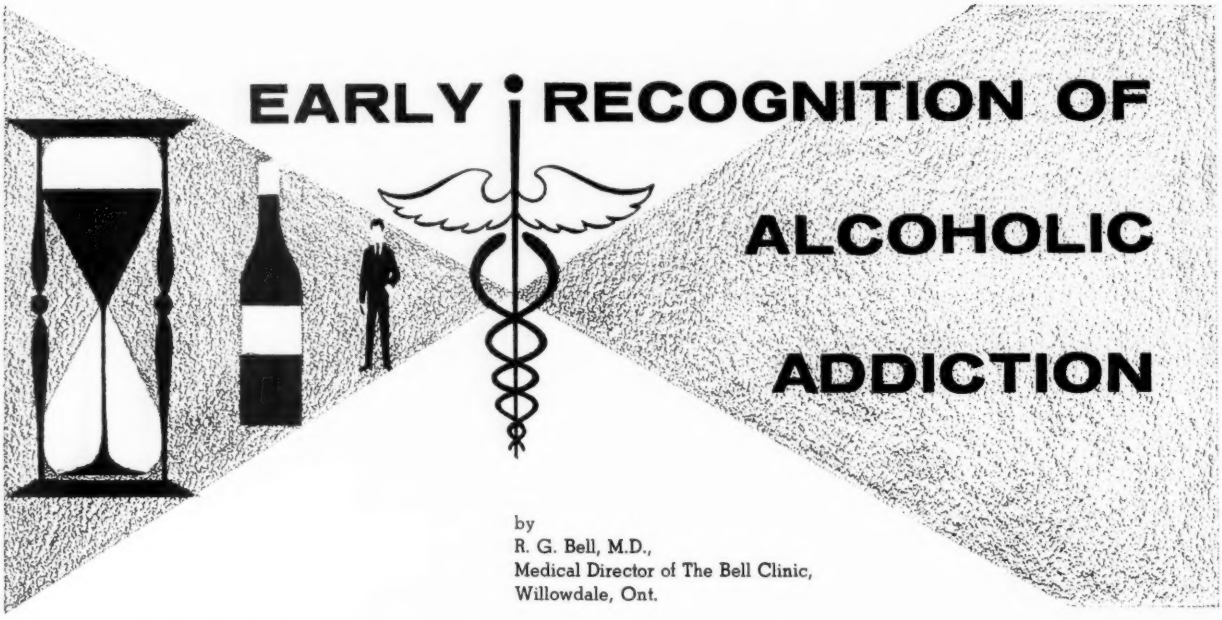
The figure 23.5 is increased to 26.7
and 14.4 is increased to 16.0

Disraeli is quoted as saying that there are "lies, damn lies and statistics". From the illustrations I have just shown, you can readily understand how sickness absentee rates may be innocently prepared with no intent to deceive. But if other figures are being compared with them, it is a wise precaution to ensure that the studies have been prepared on a similar basis.

I would like to stress the value of planning statistical studies so that the results may be easily and readily interpreted. They have greater significance if they are compared with studies by other workers. Possibly no group is in a better position than those working in Occupational Medicine to study this problem and make recommendations that will assist in standardizing techniques for the collection, assessment and interpretation of occupational health statistics.

Another of Huff's forthright remarks is worth mentioning. He has said that permitting statistical treatment and the hypnotic presence of numbers and decimal points to befog causal relationships is little better than superstition, and it is often more seriously misleading. It is rather like the conviction among the people of a group of historic islands that body lice produce good health. Observation over the centuries had taught them that people in good health usually had lice and sick people very often did not. The observation itself was accurate and sound, as observations made informally over the years surprisingly often are. Not so much can be said for the conclusion which these primitive people came to from their evidence: Lice make a man healthy—Everybody should have them.

More sophisticated observers finally got things straightened out. As it turned out, almost everyone in those circles had lice most of the time. It was, you might say, the normal condition of man. When, however, anyone took a fever (quite possibly carried to him by those same lice) and his body became too hot for comfortable habitation, the lice left. There you have cause and effect altogether confusingly distorted, reversed and intermingled.



EARLY RECOGNITION OF ALCOHOLIC ADDICTION

by
R. G. Bell, M.D.,
Medical Director of The Bell Clinic,
Willowdale, Ont.

The early manifestations of alcohol addiction are often lumped together in the general non-descriptive term "problem drinking". This paper deals with the hypothesis that it should be possible to recognize alcohol addiction clinically before it progresses to the point of becoming an administrative problem. I do not agree with the commonly held belief that a problem with alcohol should first be recognized by foremen and supervisors. Such recognition is usually based upon recurrent absenteeism, reduced efficiency, recurrent drunkenness, drinking on the job, or unexpected financial difficulties. All of these indicate at least moderately advanced stages of alcohol addiction.

There are many obstacles to the clinical recognition of early stage alcohol addiction, particularly at the time of the pre-placement examination. At this very limited stage of public awareness and acceptance of alcohol addiction as an illness, the prospective employee will be on guard when questioned concerning his drinking habits. However, more useful information might come to light in the periodic examination or when employees are referred for a multitude of reasons that elude ready diagnosis. No new information could be counted on unless the employee has confidence in the industrial physician's interest in him as a person and realizes that this information is not obtained as part of a disciplinary or administrative program. Some physicians have told me, quite frankly, that they "don't like alcoholics". Any physician who already has a fixed attitude to those involved in problems with alcohol should leave this aspect of industrial health work to another physician.

Positive information from a physical examination, such as enlarged liver, peripheral neuritis or withdrawal tremor again are indicative of moderately advanced to advanced stages of alcohol addiction. Accordingly, early indications of alcohol addiction will only be revealed by the history and functional inquiry. Again, this will fail unless it is done in a manner that is not threatening to the employee or patient, e.g., an interview which soon causes the employee to think that you are concerned about his emotional stability would be threatening to the employee. Alcohol addiction is inevitably accompanied by some degree of malnutrition. The malnutrition that could eventually produce such conditions as fatty liver, cirrhosis, peripheral neuritis, Wernicke's disease or Korsakoff's disease, usually originates years before these advanced indications of malnutrition are present. Furthermore, the disorders of malnutrition which inevitably accompany chronic, heavy drinking can be slowly progressive in the alcohol addict without drunkenness or absenteeism.

Finally, the physiological disturbance that manifests itself by the withdrawal reaction can also be well advanced without drunkenness or absenteeism. Need for the "morning drink" represents the method of the alcohol addict to treat some of the symptoms of this progressive physiological change.

Discussion

Rather than emphasize a new program to deal with alcoholism or alcohol addiction, I suggest that the industrial health department begin to emphasize a new general program of optimal nutrition. If the periodic examination could include a realistic effort to understand the nutritional status of the employee, alcohol intake would automatically need to be assessed in the same

way as carbohydrate, fat, protein, vitamin and mineral intake. This approach would take the emphasis away from alcohol, but each employee would need to be told that the whole nutritional survey would be meaningless unless complete information was provided on alcohol intake as on intake of any other substance. I suggest that a special type of diary be prepared for use by all employees from the president to the sweepers and that a place be provided for each employee to mark in the type and quantity of everything taken by mouth for at least a 3 day period. If 3 days are selected as being the longest practical period, then I suggest that Friday, Saturday and Sunday should be the days chosen for the nutritional survey.

A code might be devised known only to the industrial physician to enable the employee to remain anonymous to everyone else. A nurse could be trained to use a calorie meter and alcodial to estimate the percentage of total calories from alcohol and the highest blood alcohol level attained by each employee for the days under study. The frequency and quantity of alcohol intake would give a lead to the degree of alcohol dependence, and the degree of imbalance in nutrition could indicate the likelihood of an imminent break in tolerance for alcohol. All cases who are considered to have dangerous drinking habits could be called in for a special discussion of alcohol and nutritional status.

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